Real Time Ratings for Sacramento Area

Contract #: 500-02-018
Contractor: The Valley Group, Inc.
Subcontractors: Niskayuna Power Consultants: PDC, Inc.
Contract Amount: $392,965
Match Amount: $381,303
Contractor Project Manager: Tapani Seppa (203) 431-0262
Commission Contract Manager: Jamie Patterson (916) 657-4819
Status: Completed

Project Description:

The purpose of this contract is to demonstrate the feasibility of implementing real-time transmission line ratings for a large multi-utility area under normal system conditions, by linking the benefits from real time thermal ratings with simultaneous mitigation of voltage constraints, and by developing ratings forecasting methods.

This project supports the PIER Program objectives of:

- *Improving the energy cost/value of California's Electricity by improving economic dispatch.*
- *Improving the reliability/quality of California's electricity by mitigating the voltage constraints in the Sacramento Area.*

Proposed Outcomes:

1. Develop combined procedures for managing voltage and thermal constraints in the Sacramento area.
2. Develop forecasting algorithms based on real-time thermal ratings for day- ahead dispatch.
3. Complete a cost-benefit study regarding large-scale use of real-time thermal monitoring systems in the Sacramento area.

Project Status:

- All monitoring systems have been installed and tested at Western. All equipment is functioning and data collection has been started.
- Western has decided to purchase the monitoring equipment which will allow continuing data collection in parallel with PG&E.
- SMUD has delayed indefinitely the installation of monitors on their system.
- As a general conclusion, the main contractor has found that a project requiring close cooperation between several utilities (including many departments within each utility) is extremely difficult to manage within allocated budgets and fixed time schedules. Different entities have different priorities, which makes it very difficult or impossible to meet the overall objectives within an established timeline. Therefore timelines for projects such as this need to be very flexible.

Recommendations for future work:

1. Use results from the modified version of IntelliCAT for Windows (ICW) software (which is being developed under CIEE subcontract C-04-09) for WAPA's real time monitoring and make arrangements to transmit this data to CAISO as well.

2. Develop and incorporate algorithms for the Probabilistic Rating Pattern forecasting and short term rating persistence forecasting into ICW software. Short term rating persistence, in particular, could be very useful in support of transient rating calculations.

3. Reevaluate the needs and merits for an area-wide application of combined constraint mitigation methods. For update, please right click on http://www.energy.ca.gov/pier/final_project_reports/CEC-500-2005-095.html